Remarks

The above Amendments and the following Remarks are in reply to the Office Action mailed May 12, 2004.

Claims 1-73 were pending in the Application prior to the outstanding Office Action. Within the Office Action, Claims 1-73 were rejected. The Applicants have amended Claims 1, 23, 28, 45, 55, 58, 65, 67 and 69-73 and cancelled Claims 4 and 5. Therefore, Claims 1-3 and 6-73 are currently pending. Reconsideration of the application is respectfully requested.

I INTERVIEW SUMMARY

The Applicants and Applicants' attorneys wish to thank Examiner Tran for her time and courtesy in granting a telephone interview on Thursday, June 10, 2004 to discuss the present invention in light of U.S. Patent Number 5,879,435 to Satyapal, et al. (hereinafter "Satyapal"). The general configuration and operation of the present invention were discussed in the telephone interview as well as how the present device is distinguished from Satyapal in regard to the claims. A proposed amendment was discussed as to vertically drawing in air from the first and second inlets and horizontally driving the air out through the first and second outlets, as present in amended Claim 72.

II CLAIMS REJECTED UNDER 35 U.S.C. 103.

Satyapal

Within the Office Action, Claims 1-5, 8, 10, 14, 17-27, 29, 31, 35, 39-48, 51-59, 61-62, 65, and 71-73 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Satyapal. In particular, it is stated within the Office Action that although Satyapal does not teach a plurality of air inlets, air outlets, or ion generators, it would have been within the skill of one in the art to duplicate the parts. The Applicants respectively disagree.

As discussed in the telephone interview, the present invention is an electrostatic air transporter-conditioner having multiple inlets and outlets. In particular, the present device is preferably a compact, stand-alone consumer unit which includes a housing 210 with two inlet vents, 204a, 204b and two outlet

vents 206a, 206b. The two inlet vents 204a and 204b are preferably configured on the top and the bottom surfaces of the housing. In addition, the outlet vents 206a, 206b are preferably located in the side peripheral wall of the housing and are preferably located on opposite sides of the housing. The unit of the present invention also preferably includes two ion generating units within the housing. The present unit preferably includes a UV lamp 290 located upstream of the negative ion emitter as shown in Figures 14A-C. The UV lamp kills microbes which enter the unit through the two inlet vents before the microbes are pushed downstream toward the collector electrodes and the exit outlets.

As shown in Figures 3A and 3C of the present application, the ion generators 220 bring air into the housing 210 through the inlet vents 204a and 204b and preferably drive the air downstream toward the outlet vents 206a and 206b in the opposite sides of the housing 210. In one embodiment shown in Figure 3C, the two ion generators 220, each preferably having an emitter electrode 232 and two collector electrodes 242, are located within the housing 210, whereby high voltage applied to the emitter electrodes 232 and collector electrodes 242 in each ion generator 220 causes air to flow from the emitter electrodes 232 downstream toward the collector electrodes 242. It is preferred that the ion generators 220 face opposite directions, as shown in the one embodiment in Figure 3C, whereby the ion generators 220 each preferably bring in air vertically through the inlets 204a, 204b in the opposed top and bottom surfaces and preferably push the air horizontally through the opposite outlet vents 206a, 206b, as indicated by the "OUT" arrows in Figure 3C.

Satyapal describes an electronic air cleaner 10 having a housing 20 having one airstream inlet 22, one airstream outlet 24 and an airflow passageway 25 extending therebetween. The cleaner is designed to be installed in a central air cooling and heating system (although Satyapal indicates that an embodiment may include a portable room air cleaner), such as an air duct, such that air enters the air cleaner 10 through the inlet 22 and traverses the airflow passageway 25 whereby the air exits the air cleaner 10 through the outlet. The air passageway between the inlet and the outlet in the Satyapal device is thus one-dimensional in that air is traveling from left to right as shown by the arrows. The electrostatic participator cell 40 in Satyapal has a plurality of ionizer wires 46 and a plurality alternately charged collector plates 42 axially aligned with the airflow passageway 25. A plurality of germicidal lamps 50 emit an ultraviolet light and are

disposed downstream of the electrostatic precipitator cell 40 and upstream of any additional devices. The Satyapal device also includes a mechanical filter 30 upstream of the ionizer wires 46 which traps larger particulates entering the housing 20. A fan is positioned downstream of the air cleaner 10 to induce air flow through the device 10 ('435 Patent, Col. 3, lines 17-22). As discussed below, the present device is patentable over Satyapal.

The multiple inlets, multiple outlets as well as the multiple ion generators in the present invention do not render the present invention obvious and unpatentable in light of Satyapal. In particular, MPEP 2144.04 VIB states, " Mere duplication of parts has no patentable significance **unless** *a new and unexpected result is produced.*"

It is expressly stated in the specification of the present invention that the amount of air which enters the unit for a particular time is proportional to the total area of the inlets of the device. Additionally, the amount of air which exits the unit for a particular time is proportional to the total area of the outlets in the device. It is stated in the Office Action that one skilled in the art could combine two Satyapal devices (i.e. two inlets 22, two outlets 24 and two electrostatic precipitators 40) together to increase the inlet and outlet areas and thereby increase the flow through the modified device. However, doing so would not produce the same results as with the present invention. The multiple inlets and outlets 204, 206 of the present invention allow an increased volume of air to enter and exit the device with the device having a compact design. This is because the present invention preferably includes multiple inlets on opposing sides along with multiple outlets on opposing sides and multiple ion generators which direct the air flow from the opposed inlets to the opposed outlets. In contrast, the Satyapal device can only achieve one-dimension flow of air from the one inlet 22 to the one outlet 24 due to the configuration of the electrostatic precipitator 40 and location of the germicidal lamps 50. Thus, the configuration of the Satyapal device only lends the notion to one skilled in the art that two electrostatic precipitators 40 can be placed adjacent to each other, instead of opposite of each other, thereby creating a large, bulky system.

In addition, unlike the prior art, the present invention allows air to be drawn in and exhausted from multiple directions, thereby allowing the present invention to be placed in multiple locations in a room. In one example, the multiple inlets and outlets allow the present invention to be placed against a wall and still

operate effectively. The prior art, and in particular Satyapal, teaches that, to be effective, the Satyapal device must be put in so that the single inlet and the single outlet be placed in a line of the airflow through the air conditioning duct. Therefore, the Satyapal device is not able to be placed anywhere in a room, as with the present invention. Further, since air preferably enters the present device in one direction and gradually exits the device in a non-parallel direction, the airflow may momentarily slow down within the device as the flow begins to travel toward the outlets. This momentary slowing of the airflow may allow better particle collection efficiency within the device since more particles can be ionized and thus be collected by the collector electrodes. In the case that a germicidal lamp is used within the device, the momentary slowing of the airflow may allow the air to be exposed to the germicidal lamp for a longer period of time. These are not hinted, taught or even merely suggested in Satyapal. Therefore, the use of multiple inlets, outlets and ion generators in the present invention yields new and unexpected results. MPEP 2144.04 VIB.

The orientation and arrangement of the opposed inlets, opposed outlets and ion generators in the present invention does not render the invention obvious and unpatentable in light of Satyapal. In particular, MPEP 2144.04 VIC states that the prior art must provide *a motivation or reason* for one skilled in the art, without the benefit of the applicants' specification, to make the necessary changes in the prior art device to reach the claimed invention.

It is expressly stated in the Satyapal reference that the device is to be used in a commercial forced-air heating or cooling (HVAC) system, whereby air from the forced-air enclosure enters the device through the inlet. Thus, the inlet 22, outlet 24 and electrostatic precipitator 40 of the Satyapal device are in a one-dimension arrangement such that the cleaner 10 can be utilized in a ventilation duct. Figure 1 in Satyapal specifically illustrates the outside of the cleaner 10 with the inlet 22 on the right side and the outlet 24 on the left side. Satyapal does not hint, teach or suggest to one skilled in the art that the inlet and the outlet can be oriented to be opposite from one another. Further, there is absolutely no teaching how two electrostatic precipitators would be utilized in the Satyapal device, especially considering that the Satyapal device is placed upstream of a fan (not shown). In fact, Satyapal teaches away from the orientation and arrangement of the preferred present invention, because doing so would undermined the use of the

mechanical filter 30. Oppositely facing outlets and electrostatic precipitators in Satyapal may cause particles entrained in the mechanical filter 30 to be pulled off the filter 30 due to the airflow exiting the opposing outlet. For at least these reasons, there is no motivation or reason for one skilled in the art to modify Satyapal to reach the present invention. MPEP 2144.04 VIC.

Regarding amended Claim 1, as stated above, Satyapal does not provide motivation to one skilled in the art to modify the Satyapal device to have inlets on opposing sides of the housing as well as outlets on opposing sides of the housing. Additionally, Satyapal teaches away from using multiple electrostatic precipitators to create a first and second airflow toward opposite outlets. Accordingly, amended Claim 1 is patentable over Satyapal individually or in combination.

Claims 2-5, 8, 10, 14, and 17-22 are dependent upon the independent Claim 1. As stated above, Claim 1 is allowable over the teachings of Satyapal. Additionally, Claims 4 and 5 have been cancelled. Accordingly, Claims 2-3, 8, 10, 14, and 17-22 are also allowable as being dependent upon an allowable base claim.

Regarding amended Claim 23, as stated above, there is no hint, teaching or suggestion in Satyapal to modify the air cleaner to have multiple inlets which are non-parallel to the multiple outlets. As stated above, the arrangement of the multiple inlets, outlets and ion generators in the present invention produce new and unexpected results. For at least these reasons, amended Claim 23 is patentable over Satyapal individually or in combination.

Claims 24-27, 29, 31, 35, and 39-44 are dependent upon the independent Claim 23. As stated above, amended Claim 23 is allowable over the teachings of Satyapal. Accordingly, Claims 24-27, 29, 31, 35, and 39-44 are also allowable as being dependent upon an allowable base claim.

Regarding amended Claim 45, there is no hint, teaching or suggestion in Satyapal to modify the structure of the air cleaner to have inlets in the top and bottom of the housing as well as an outlet in the side of the housing. Additionally, there is no motivation or reason for one skilled in the art to vertically draw air from the inlets and horizontally drive the air to the outlet. For at least these reasons, amended Claim 45 is patentable over Satyapal individually or in combination.

Claims 46-48 and 51-54 are dependent upon the independent Claim 45. As stated above,

amended Claim 45 is allowable over the teachings of Satyapal. Accordingly, Claims 46-48 and 51-54 are also allowable as being dependent upon an allowable base claim.

Regarding amended Claim 55, there is no hint, teaching or suggestion in Satyapal to modify the structure of the air cleaner to have inlets in the top and bottom of the housing as well as outlets on opposite sides of the housing. Additionally, there is no motivation or reason for one skilled in the art to include modify Satyapal to have multiple electrostatic precipitators to create airflow from the inlets to the outlets on opposite sides of the housing. For at least these reasons, amended Claim 55 is patentable over Satyapal individually or in combination.

Claims 56-59, 61 and 62 are dependent upon the independent Claim 55. As stated above, amended Claim 55 is allowable over the teachings of Satyapal. Accordingly, Claims 56-59, 61 and 62 are also allowable as being dependent upon an allowable base claim.

Regarding amended Claim 65, there is no hint, teaching or suggestion in Satyapal to modify the structure of the air cleaner to have inlets opposite from each other as well as outlets opposite from each other. Additionally, there is no motivation or reason for one skilled in the art to include modify Satyapal to have multiple electrostatic precipitators to dividedly direct the incoming air from the inlets to the outlets on opposite sides of the housing. For at least these reasons, Claim 65 is patentable over Satyapal individually or in combination.

Regarding amended Claim 71, it is stated above that the inlet and outlet of the air cleaner in Satyapal are arranged in a one dimension direction, whereby the electro-static precipitator in Satyapal is oriented to ionize air in the one dimension direction. Thus, there is no motivation or reason for one skilled in the art to include modify the Satyapal device to have inlets which are substantially perpendicular to the outlet. For at least these reasons, Claim 71 is patentable over Satyapal individually or in combination with other references.

Regarding amended Claim 72, there is no hint, teaching or suggestion in Satyapal to modify the structure of the air cleaner to have inlets in the top and bottom of the housing as well as outlets on opposite sides of the housing. Additionally, there is no motivation or reason for one skilled in the art to modify Satyapal to have multiple electrostatic precipitators which vertically draw air from the inlets and horizontally

drive the air out of the opposed outlets. For at least these reasons, amended Claim 72 is patentable over Satyapal individually or in combination.

Regarding amended Claim 73, there is no hint, teaching or suggestion in Satyapal to modify the structure of the air cleaner to have inlets opposite from each other as well as outlets opposite from each other. Additionally, there is no motivation or reason for one skilled in the art to include modify Satyapal to have multiple electrostatic precipitators which direct a first airflow and a second airflow away from each other toward their respective outlets. For at least these reasons, Claim 73 is patentable over Satyapal individually or in combination with other references.

Satyapal in view of Moon

Within the Office Action, Claims 6, 11-13, 28, 32-34, and 66-70 have also been rejected within the Office Action under 35 U.S.C. 103(a) as being unpatentable over Satyapal and in view of U.S. Patent No. 5,215,558 to Moon (hereinafter "Moon"). The Applicants respectfully traverse.

Claims 6 and 11-13 are dependent upon the independent Claim 1. Claims 28 and 32-34 are dependent on the independent Claim 23. Also, Claims 61 and 62 are dependent on the independent Claim 55. As stated above, Claims 1, 23 and 55 are allowable over the teachings of Satyapal. Accordingly, Claims 6, 11-13, 28 and 32-34 are also allowable as being dependent upon allowable base claims.

Regarding Claim 67, as stated above, there is no hint, teaching or suggestion in Satyapal to modify the conditioner to have at least two inlets opposed from each other, and at least two outlets opposed from each other. Additionally, there is no motivation or reason for one skilled in the art to modify Satyapal to have multiple electrostatic precipitators which create airflow from the inlets to their respective outlets on opposite sides of the housing. For at least these reasons, Claim 67 is patentable over Satyapal and Moon, individually or in combination.

Claim 68 is dependent upon the independent Claim 67. As stated above, Claim 67 is allowable over the teachings of Satyapal and Moon, individually or in combination. Accordingly, Claim 68 is also allowable as being dependent upon an allowable base claim.

Regarding Claims 69 and 70, there is no hint, teaching or suggestion in Satyapal to modify the

structure of the air cleaner to have opposed inlets. Additionally, there is no motivation or reason for one skilled in the art to include modify Satyapal to have multiple electrostatic precipitators which create airflow from the opposed inlets to one or more outlets. For at least these reasons, Claim 70 is patentable over Satyapal individually or in combination with other references.

Satyapal in view of Anzai

Within the Office Action, Claim 7, 15, 16, 36-38, 49, 50, 60, 63 and 64 were rejected under 35 U.S.C. 103(a) as being unpatentable over Satyapal in view of U.S. Patent No. 4,772,297 to Anzai. The Applicants respectfully traverse.

Claims 7, 15 and 16 are dependent upon the independent Claim 1. As stated above, Claim 1 is allowable over the teaching of Satyapal and Anzai, individually or in combination. Accordingly, Claims 7, 15 and 16 are also allowable as being dependent upon an allowable base claim.

Claims 36-38 are dependent upon the independent Claim 23. As stated above, Claim 23 is allowable over the teachings of Satyapal and Anzai individually or in combination. Accordingly, Claims 36-38 are also allowable as being dependent upon an allowable base claim.

Claims 49 and 50 are dependent upon the independent Claim 45. As stated above, Claim 45 is allowable over the teachings of Satyapal and Anzai individually or in combination. Accordingly, Claims 49 and 50 are also allowable as being dependent upon an allowable base claim.

Claims 60, 63 and 64 are dependent upon the independent Claim 55. As stated above, Claim 55 is allowable over the teachings of Satyapal and Anzai individually or in combination. Accordingly, Claims 60, 63 and 64 are also allowable as being dependent upon an allowable base claim.

For at least these reasons, Claims 7, 15, 16, 36-38, 49, 50, 60, 63 and 64 are allowable over Satyapal and Anzai, individually or in combination.

III. SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants have filed a supplemental information disclosure statement along with the present response. The Applicants would like to point out that the present invention is patentable over U.S. Patent

No. 3,744,216 to Halloran (hereinafter "Halloran") which is submitted in the IDS filed along with the present response.

Halloran teaches an air purifier having an inlet in the top surface and two outlets in opposing side surfaces. In particular, the purifier includes a wetted screen 30, an oxidizing agent 34, a set of germicidal lamps 40, 42, a filter member 44 and a set of blowers 58, 60 attached to the outlets. The oxidizing agent 34 forms negative ions in solution and oxidizes odor-ful organic and inorganic compounds and breaks down the odor-ful compounds into odorless compounds. A wick 32 supplies the ionized oxidizing agent from a container 34 to the wetted screen 30. The wick 32 is wrapped with a negatively charged electrode. The negative ions in the agent are repelled by the negative electrode to promote the formation of oxidizing droplets. Thus negative droplets are introduced into the air stream and are attracted by positively charged particles in the air stream. The reaction between the negative droplets and the positive particles will cause odors to be eliminated.

Halloran specifically teaches that the negative charge associated with the wetted screen 30 will cause the electrons to be emitted when struck by the ultraviolet rays from the lamps 40, 42. The emitted electrons will then strike particles in the air stream to knock off the extra electrons, thereby giving the struck particles a net positive charge. The positively charged particles travel to the negatively charged zig-zag filter 44 and are trapped therein. The blowers 58, 60 cause the air to enter the device 10 to be oxidized and also push the cleaned air out through the outlets (Halloran, Col. 3, Lines 16-48).

One skilled in the art, upon viewing Halloran, would have no motivation to modify Halloran to reach the present invention. In contrast to Halloran, the present invention utilizes emitter electrodes and collector electrodes which create an airflow in a desired direction from multiple inlets to multiple outlets. Halloran does not utilize an emitter electrode, but instead relies on the germicidal lamps 40, 42 to charge the ions to be collected by the filter 44. In addition, the Halloran device 10 uses the negatively charged electrode around the wick 32 to create an evaporation field to attract particles instead of creating an airflow. Therefore, neither the germicidal lamps 40, 42 nor the negative charged electrode that is wrapped around the wick 32 creates an airflow through the device 10. Instead, the Halloran device relies on the blowers 58, 60 to create the airflow through the device 10. The chemical agent and germicidal lamps are integral

to the Halloran device to attract, ionize and collect the particles within the device 10. Thus, there is no motivation in Halloran to modify the Halloran device to reach the present invention. Accordingly, the present invention is patentable over Halloran.

IV CONCLUSION

In light of the above, it is respectfully submitted that Claims 1-3 and 6-73 in the subject patent application are allowable, and a Notice of Allowance is respectfully requested. The Examiner is respectfully requested to telephone the undersigned to assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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